Teachers' Retirement System of the State of Kentucky Report of the Actuary on the Annual Valuation of the Life Insurance Plan

Prepared as of June 30, 2007

Cavanaugh Macdonald
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May 19, 2008

Mr. Gary L. Harbin
Executive Secretary
Teachers' Retirement System
Commonwealth of Kentucky
479 Versailles Road
Frankfort, KY 40601-3800

Dear Gary:

Enclosed are 25 bound copies and one unbound copy of the "Teachers Retirement System of Kentucky – Report of the Actuary on the Annual Valuation of the Life Insurance Plan Prepared as of June 30 2007".

Sincerely yours,

Edward A. Macdonald, ASA, FCA, MAAA
President

Alisa Bennett, ASA, EA, FCA, MAAA
Senior Actuary

EAM/AB:kc

Enclosure

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May 19, 2008

Board of Trustees
Teachers' Retirement System of the
State of Kentucky
479 Versailles Road
Frankfort, KY 40601-3800

Members of the Board:

Section 161.400 of the law governing the operation of the Teachers' Retirement System of the State of Kentucky provides that at least annually the actuary shall make an actuarial valuation of the Retirement System.

In addition, Governmental Accounting Standards Board Statements No. 43 and 45 require actuarial valuations of post-employment benefit plans. In accordance with GASB 43 and 45, we have determined liabilities separately for life insurance benefits payable upon death in active service and those payable upon death after retirement.

We have submitted the report giving the results of the valuation of the Plan prepared as of June 30, 2007. The report indicates that employer contributions at the rate of 0.17% of active payroll for University and Non-University members are sufficient to support the post-retirement benefits of the Plan. We recommend that assets be segregated into separate accounts for the purpose of administering post-employment and pre-retirement life insurance benefits.

The funding method used for this valuation is the unit credit actuarial cost method. Gains and losses are reflected in the unfunded accrued liability. The actuarial assumptions used are in the aggregate reasonably related to the experience under the Plan and to reasonable expectations of anticipated experience under the Plan. In our opinion, if assets are segregated into separate accounts, the Plan will operate in an actuarially sound basis and sufficient funds to provide the benefits called for by the Plan may be safely anticipated.

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

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This is to certify that the independent consulting actuary is a member of the American Academy of Actuaries and has experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement system and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System.

Respectfully submitted,

Edward A. Macdonald, ASA, FCA, MAAA
President

Alisa Bennett, ASA, EA, FCA, MAAA
Senior Actuary

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TEACHERS' RETIREMENT SYSTEM
OF THE STATE OF KENTUCKY
REPORT OF ACTUARY ON THE LIFE INSURANCE VALUATION
PREPARED AS OF JUNE 30, 2007

SECTION I - SUMMARY OF PRINCIPAL RESULTS

1. For convenience of reference, the principal results of the valuation are summarized below:

	Total	Post-Employment	Pre-Retirement
Active members:			
Number			
Full Time	57,192	57,192	57,192
Part Time	17,952	17,952	17,952
Total	75,144	75,144	75,144
Annual compensation	$ 2,975,289,033	$ 2,975,289,033	$ 2,975,289,033
Retired members:			
Number	36,616	36,616	N/A
Actuarial Accrued Liability	$ 82,722,444	$ 82,104,167	$ 618,277
Market Value of Assets *	$ 71,426,112	$ 0	$ 71,426,112
Unfunded Actuarial Accrued Liability	$ 11,296,332	$ 82,104,167	$ (70,807,835)
Annual Required Contribution rates:			
Normal Cost	0.04%	0.04%	0.00%
Accrued Liability	0.02	0.14	(0.12)
Total**	0.06%	0.18%	0.00%

* Since the assets for the Life Insurance Plan are not currently held in an irrevocable trust for post-employment benefits only, the assets cannot be used under GASB 43 and 45. Schedule D of this report shows our recommended asset allocation to such a trust.

** The Total Annual Required Contribution cannot be less than 0%.

2. Beginning in the fiscal year ending after December 15, 2005, GASB 43 and 45 is required only for post-employment benefits. In accordance with GASB 43 and 45, we have determined liabilities separately for life insurance benefits payable upon death in active service (pre-retirement) and those payable upon death after retirement (post-employment). It is our understanding that during 2008 assets will be segregated into separate accounts for the purpose of administering post-employment and pre-retirement life insurance benefits. The life insurance benefit fund will include such accounts and will be administered as a separate trust for the purpose of providing life insurance benefits under KRS 161.655. Schedule D of this report shows the proposed asset segregation.

3. Comments on the valuation results as of June 30, 2007 are given in Section IV and further discussion of the contribution levels is set out in Sections V and VI.

4. Schedule E of this report outlines the full set of actuarial assumptions and methods employed in the current valuation.

5. The valuation takes into account the effect of amendments to the System enacted through the 2007 Session of the Legislature.

SECTION II - MEMBERSHIP DATA

1. Data regarding the membership of the System for use as a basis of the valuation were furnished by the Retirement System office. The following table shows the number of active members and their annual salaries as of June 30, 2007 on the basis of which the valuation was prepared.

Group	Number	Annual Salaries ($1,000's)
Full Time	57,192	$ 2,856,193
Part time	17,952	119,096
Total	75,144	$ 2,975,289

SECTION III - ASSETS

1. GASB 43 and 45 define plan assets as resources, usually in the form of stocks, bonds and other classes of investments, that have been segregated and restricted in a trust, or equivalent arrangement, in which (a) employer contributions to the plan are irrevocable, (b) assets are dedicated to providing benefits to retirees and their beneficiaries, and (c) assets are legally protected from creditors of the employers or plan administrator, for the payment of benefits in accordance with the terms of the plan. Since benefits are paid from the current trust for active members as well as for retired members, the current plan assets do not meet the requirements of (b) above. Therefore, for the June 30, 2007 valuation, no assets were assumed to apply to the valuation of the post-employment life insurance benefits. It is our understanding that during 2008 assets will be segregated into separate accounts for the purpose of administering post-employment and pre-retirement life insurance benefits. The life insurance benefit fund will include such accounts and will be administered as a separate trust for the purpose of providing life insurance benefits under KRS 161.655. Schedule D of this report shows the proposed asset segregation. The valuation as of June 30, 2008 will reflect these assets for the post-employment valuation.
2. As of June 30, 2007 the market value of assets for valuation purposes held by the Life Insurance Fund amounted to $71,426,112.
3. Schedule C shows the receipts and disbursements for the year preceding the valuation date and a reconciliation of the asset balances for the Life Insurance Fund.

SECTION IV - COMMENTS ON VALUATION

1. Schedules A and B of this report outlines the results of the actuarial valuation. The valuation was prepared in accordance with the actuarial assumptions and the actuarial cost method, which are described in Schedule E.

2. The valuation shows that the Plan has an actuarial accrued liability of $618,277 for benefits expected to be paid on account of death while in active service based on service to the valuation date. Against these liabilities, the Plan has present assets for valuation purposes of $71,426,112. Therefore, the unfunded actuarial accrued liability is equal to ($70,807,835).

3. The valuation shows that the Plan has an actuarial accrued liability of $64,756,494 for benefits expected to be paid to current retired members and $17,347,673 for benefits expected to be paid on account of present active members for death after retirement based on service to the valuation date. The total actuarial accrued liability of the Plan for post-employment benefits is, therefore $82,104,167. Against these liabilities, the Plan has present assets for valuation purposes of $0. Therefore, the unfunded actuarial accrued liability is equal to $82,104,167.

SECTION V - CONTRIBUTIONS

1. The normal contribution rate is equal to the actuarial present value of benefits accruing during the current year as a percent of active member payroll. The normal contribution rate is determined to be $57,947 or 0.00% of payroll for pre-retirement benefits and 0.04% of payroll for post-employment benefits.

2. The unfunded accrued liability contribution rate is equal to (0.12%) of active members' payroll for pre-retirement benefits and 0.14% of active members payroll for post-employment benefits, based on a 30-year amortization period for the unfunded accrued liability, assuming that active payroll will increase by 4.0% annually. .

3. The total required contribution for post-employment benefits is, therefore, 0.18% of active members' payroll, before any assets are segregated. Schedule D of this report shows the proposed asset allocation for post-employment benefits and valuation results as if the assets are segregated.

SECTION VI - ACCOUNTING INFORMATION

1. Governmental Accounting Standards Board Statements 43 and 45 set forth certain items of required supplementary information to be disclosed in the financial statements of the System and the employer. One such item is a distribution of the number of employees by type of membership, as follows:

NUMBER OF ACTIVE AND RETIRED MEMBERS
AS OF JUNE 30, 2007

GROUP	NUMBER
Retirees and beneficiaries currently eligible to receive benefits	36,616
Active plan members	75,144
Total	111,760

2. Another such item is the schedule of funding progress as shown below.

SCHEDULE OF FUNDING PROGRESS
For Post-Employment Benefits
(Dollar amounts in thousands)

ACTUARIAL VALUATION DATE	ACTUARIAL VALUE OF ASSETS (A)	ACTUARIAL ACCRUED LIABILITY (AAL) PROJECTED UNIT CREDIT (B)	UNFUNDED AAL (UAAL) (B-A)	FUNDED RATIO (A/B)	COVERED PAYROLL (C)	UAAL AS A PERCENTAGE OF COVERED PAYROLL ((B-A)/C)
6/30/2007	$0	$82,104,167	$82,104,167	0%	$2,975,289,033	2.76%

3. The information presented in the required supplementary schedules was determined as part of the actuarial valuation at June 30, 2007. Additional information as of the latest actuarial valuation follows.

Valuation date	6/30/2007
Actuarial cost method	Projected unit credit
Amortization method	Level percent of pay, open
Remaining amortization period	30 years
Asset valuation method	Market Value
Actuarial assumptions:	
Investment rate of Return*	7.50%
*Includes inflation at	4.00%

SCHEDULE A

VALUATION RESULTS

PREPARED AS OF JUNE 30, 2007
OF THE KENTUCKY TEACHERS LIFE INSURANCE PLAN
FOR PRE-RETIREMENT BENEFITS

(1)	**ACTUARIAL ACCRUED LIABILITY:**		
	Present value of benefits payable on account of present retired members	$	0
	Present value of benefits payable on account of present active members	$	618,277
	TOTAL ACTUARIAL ACCRUED LIABILITY	$	618,277
(2)	**PRESENT ASSETS FOR VALUATION PURPOSES:**	$	71,426,112
(3)	**UNFUNDED ACTUARIAL ACCRUED LIABILITY: (1)- (2)**	$	(70,807,835)
(4)	**EMPLOYER NORMAL CONTRIBUTION RATE:**		0.00%
(5)	**ACCRUED LIABILITY CONTRIBUTION:**		(0.12)%
(6)	**TOTAL EMPLOYER CONTRIBUTION: (4) + (5)** **(Not less than 0%)**		0.00%

SCHEDULE B

VALUATION RESULTS

PREPARED AS OF JUNE 30, 2007
OF THE KENTUCKY TEACHERS LIFE INSURANCE PLAN
FOR POST-EMPLOYMENT BENEFITS

(1)	**ACTUARIAL ACCRUED LIABILITY:**		
	Present value of benefits payable on account of present retired members	$	64,756,494
	Present value of benefits payable on account of present active members	$	17, 347,673
	TOTAL ACTUARIAL ACCRUED LIABILITY	$	82,104,167
(2)	**PRESENT ASSETS FOR VALUATION PURPOSES:**	$	0
(3)	**UNFUNDED ACTUARIAL ACCRUED LIABILITY: (1)-(2)**	$	82,104,167
(4)	**EMPLOYER NORMAL CONTRIBUTION RATE:**		0.04%
(5)	**ACCRUED LIABILITY CONTRIBUTION:**		0.14%
(6)	**TOTAL EMPLOYER CONTRIBUTION: (4) + (5)**		0.18%

SCHEDULE C

LIFE INSURANCE FUND
SUMMARY OF RECEIPTS AND DISBURSEMENTS
(Market Value)

	For the Year Ending	
	June 30, 2007	June 30, 2006
Receipts for the Year		
Contributions		
Members	$ 0	$ 0
Employers	5,022,137	4,813,703
Total	$ 5,022,137	$ 4,813,703
Net Investment Income	3,067,738	2,689,330
TOTAL	$ 8,089,875	$ 7,503,033
Disbursements for the Year		
Benefit Payments	$ 4,245,000	$ 3,894,000
Refunds to Members	0	0
Medical Insurance Payments	0	0
Miscellaneous, including expenses	0	0
TOTAL	$ 4,245,000	$ 3,894,000
Excess of Receipts over Disbursements	$ 3,844,875	$ 3,609,033
Reconciliation of Asset Balances		
Asset Balance as of the Beginning of the Year	$ 67,581,237	$ 63,972,204
Excess of Receipts over Disbursements	3,844,875	3,609,033
Asset Balance as of the End of the Year	$ 71,426,112	$ 67,581,237

SCHEDULE D

ASSET ALLOCATION

Since no assets were held in a trust exclusively for post-employment benefits as of June 30, 2007, we have shown that the employer annual required contribution for post-employment benefits under GASB 43 and 45 is 0.18% of active member's payroll for the fiscal year ending June 30, 2010. There are many ways to actuarially allocate assets for life insurance benefits payable upon death in active service (pre-retirement) and payable upon death after retirement (post-employment). We have developed a scenario that allocates the assets and future employee contributions accordingly:

- Sufficient assets are allocated to pre-retirement benefits to allow for no employer contribution rate for 30 years for pre-retirement benefits.
- Remaining assets are segregated for the post-employment benefits.

The allocation and segregation of assets will take place subsequent to the June 30, 2007 valuation. However, if the June 30, 2007 valuation had this asset allocation and segregation, the hypothetical results are shown on the following page.

Hypothetical Valuation Results if Assets are Segregated for Post-Employment Benefits

in the Amount in Excess of the Amount Needed to Cover Pre-Retirement Costs for 30 Years

	Post- Employment	Pre-Retirement
Annual Compensation	$ 2,975,289,033	$ 2,975,289,033
Accrued Liability	$ 82,104,167	$ 618,277
Market Value of Assets	$ 69,687,412	$ 1,738,700
Unfunded Actuarial Accrued Liability	$ 12,416,755	$ (1,120,423)
For Fiscal Year Ending	**June 30, 2010**	**June 30, 2010**
Normal Rate:	0.04%	0.00%
Accrued Liability Rate:	0.02%	0.00%
Total Employer Rate:	0.06%	0.00%*
Funding Period	30 years	30 years

* Actual Employer Contribution is $0.

SCHEDULE E

OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS

The assumptions and methods used in the valuation were selected based on the actuarial experience study prepared as of June 30, 2005, submitted to and adopted by the Board on September 18, 2006.

INVESTMENT RATE OF RETURN: 7.5% per annum, compounded annually.

SEPARATIONS FROM SERVICE: Representative values of the assumed annual rates of death, disability, withdrawal, service retirement and early retirement are as follows:

Males

	Annual Rate of						
						RETIREMENT	
			WITHDRAWAL			Before 27 Years of Service	After 27 Years of Service*
			Service				
Age	DEATH	DISABILITY	0 – 4	5 – 9	10+		
20	0.003%	0.01%	9.00%				
25	0.010%	0.01%	9.00%	1.50%			
30	0.016%	0.02%	9.00%	3.00%	3.00%		
35	0.032%	0.05%	10.00%	3.25%	1.50%		
40	0.048%	0.08%	10.00%	3.75%	1.50%		
45	0.064%	0.22%	9.50%	2.50%	1.50%		25.0%
50	0.104%	0.42%	10.00%	4.00%	3.00%		20.0%
55	0.216%	0.60%	11.00%	3.00%	2.70%	6.0%	35.0%
60	0.375%	0.79%	11.00%	3.00%	2.70%	14.0%	25.0%
62	0.438%	0.83%	11.00%	3.00%	2.70%	14.0%	23.0%
65	0.566%	0.90%	11.00%	3.00%	2.70%	22.5%	35.0%
70	0.905%	0.00%	0.00%	0.00%	0.00%	100.0%	100.0%

*Plus 5% before age 55 and 15% after age 55 in year when first eligible for unreduced retirement with 27 years of service.

Females

Age	Annual Rate of DEATH	DISABILITY	WITHDRAWAL Service 0 – 4	5 – 9	10+	RETIREMENT Before 27 Years of Service	After 27 Years of Service*
20	0.002%	0.03%	6.00%				
25	0.007%	0.03%	8.50%	3.00%			
30	0.014%	0.04%	9.00%	4.00%	1.50%		
35	0.026%	0.11%	8.50%	4.00%	2.00%		
40	0.044%	0.22%	8.50%	2.50%	1.50%		
45	0.055%	0.38%	7.00%	2.50%	1.50%		25.0%
50	0.066%	0.44%	8.50%	3.00%	2.25%		20.0%
55	0.085%	0.56%	10.00%	3.50%	2.50%	7.5%	35.0%
60	0.122%	0.85%	11.00%	3.50%	2.50%	16.5%	30.0%
62	0.137%	0.85%	11.00%	3.50%	2.50%	12.5%	25.0%
65	0.159%	0.85%	11.00%	3.50%	2.50%	26.0%	30.0%
70	0.195%	0.00%	0.00%	0.00%	0.00%	100.0%	100.0%

*Plus 5% before age 55 and 20% after age 55 in year when first eligible for unreduced retirement with 27 years of service.

DEATHS AFTER RETIREMENT: According to the 1994 Group Annuity Mortality Table for the period after service retirement. Special rates are used for the period after disability retirement. Representative values of the assumed annual rates of death after service and disability retirement are as follows:

Age	Annual Rate of Death After Service Retirement Male	Service Retirement Female	Disability Retirement Male	Disability Retirement Female
45	0.1578%	0.0973%	6.500%	6.500%
50	0.2579	0.1428	10.000	10.000
55	0.4425	0.2294	10.000	10.000
60	0.7976	0.4439	9.000	9.000
65	1.4535	0.8636	10.000	10.000
70	2.3730	1.3730	6.500	4.500
75	3.7211	2.2686	7.000	6.000
80	6.2027	3.9396	10.000	6.500
85	9.7240	6.7738	12.500	7.500
90	15.2931	11.6265	15.000	17.500
95	23.3606	18.6213	23.368	31.702

ACTUARIAL METHOD: Unit Credit Actuarial Cost Method with projected benefits. Actuarial gains and losses are reflected in the unfunded actuarial accrued liability.

ASSETS: Market value.

EXPENSE LOAD: None.

PERCENT MARRIED: 100%, with females 3 years younger than males.

SCHEDULE F

SUMMARY OF MAIN SYSTEM PROVISIONS AS INTERPRETED FOR VALUATION PURPOSES

The Teachers' Retirement System of the State of Kentucky was established on July 1, 1940. The valuation took into account amendments to the System effective through June 30, 2007. The following summary describes the main benefit and contribution provisions of the System as interpreted for the valuation.

Life Insurance Benefit

(1) Effective July 1, 2000, the Teachers Retirement system shall:

(a) Provide a life insurance benefit in a minimum amount of five thousand dollars ($5,000) for its members who are retired for service or disability. This life insurance benefit shall be payable upon the death of a member retired for service or disability to the member's estate or to a party designated by the member on a form prescribed by the retirement system; and

(b) Provide a life insurance benefit in a minimum amount of two thousand dollars ($2,000) for its active contributing members. This life insurance benefit shall be payable upon the death of an active contributing member to the member's estate or to a party designated by the member on a form prescribed by the retirement system.

Note: Qualified members working 45 days per year will be eligible for survivor benefits and a life insurance benefit for the balance of the fiscal year and disability benefits under certain conditions. For substitute and part-time members, the survivor benefits and life insurance benefit are provided during the first 44 days if death occurs as the result of a physical injury on the job. The disability benefit is available as a direct result of a physical injury on the job during the five-year vesting period. After vesting, the disability benefit is available upon working 45 days for the balance of that fiscal year in accordance with the regular KTRS disability program.